station and subscriber station. The data rate for the TFCI in-band signaling is high and uses considerable transmission resources. If it is possible to make savings here by virtue of generally valid agreements at the start of connection, then the number of TFCI bits required can be reduced, or the number of combination options can be increased.

The method according to the present invention and its advantageous developments give rise to the following advantages:

- With purely implicit signaling, there is no additional signaling complexity, ~~which means that~~ wherein the available TFCI bits can be used exclusively for signaling the combination of data rates for the individual services with very fine granularity.
- Implicit signaling permits a high maximum transmission capacity to be allocated for each connection. The resultant dependencies of the possible data rates between the connections become less significant the more connections are involved and common channels are available.
- The additionally possible allocation of the same service combinations to various common channels using a respective unique TFCI value permits a very high degree of flexibility to be achieved.
- The complexity for signaling common channels can be matched very precisely to the requirements of the connection and need not involve whole bits.
- The use of common channels can be limited to particular, higher-rate service combinations or those with high data rate dynamics, while low-rate service combinations are transmitted exclusively using dedicated channels.
- It is possible to allocate common channels on a connection-oriented basis and dynamically, depending on the current number of used channels.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Preferred Embodiments and the Drawings.

## DESCRIPTION OF THE DRAWINGS

~~Exemplary embodiments of the invention are explained in more detail with reference to the appended drawings, in which~~

Figure 1 shows a schematic illustration of a radio communication system;

Figure 2 shows a layer model of the transmission protocols;

Figures 3, 4 show data for various services mapped onto jointly used physical channels;

Figures 5, 6 show tables containing allocation options for common channels for a ~~plurality~~ number of connections;

Figures 7, 8 show ambiguous allocations and, hence, reduction in the likelihood of blockages~~,~~; and

Figure 9 shows data transmission in frames with in-band signaling.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The mobile radio system shown in Figure 1 as an example of a radio communication system ~~comprises~~ includes a multiplicity of mobile switching centers MSC which are interlinked and set up access to a landline network PSTN. In addition, these mobile switching centers MSC are connected to at least one respective device RNM for controlling the transmission resources. Each of these devices RNM permits, in turn, a connection to at least one base station BS.

A base station BS can set up a connection to subscriber stations, e.g. mobile stations MS or other mobile and stationary terminals, via a radio interface. Each base station BS forms at least one radio cell. Figure 1 shows connections for transmitting user information between a base station BS and mobile stations MS. Within a connection V1, data for, by way of example, three services S (S1, S2, S3) are transmitted within one or more physical channels Phy CH, and signaling information, e.g. the allocated radio system resources for a connection V1, is transmitted via a monitoring channel FACH (Forward link Access CHannel) which accompanies the connection.

An operation and maintenance center OMC provides monitoring and maintenance functions for the mobile radio system or for parts thereof. The functional scope of this structure can be transferred to other radio communication

systems in which the present invention can be used, in particular for subscriber access networks with wireless subscriber access.

In the radio communication system shown in Figure 1, both the base stations BS and the mobile stations MS are provided with both transmission ~~means~~ and signaling devices ~~means~~ which communicate with one another. The transmission ~~means are~~ device is used for transmitting data for a combination of a ~~plurality~~ number of services S via the currently available physical channels Phy CH. The physical channels Phy CH may be in the form of dedicated channels DCH, i.e. used exclusively by one connection, or in the form of common channels DSCH, i.e. used alternately by different connections V1, V2. A distinction, therefore, needs to be drawn between physical channels Phy CH jointly used by a ~~plurality~~ number of services S1, S2, S3 on a connection V1 and common channels DSCH, which are allocated to a ~~plurality~~ number of connections V1, V2 but is allocated to just one of the connections V1 or V2 for use during a period of time. The allocation of a common channel DSCH can be changed very rapidly from frame to frame without additional signaling complexity. The use of a common channel DSCH by different connections at successive times permits, in particular, good correspondence to the high data rate and high dynamics of the data rate of some connections V1, V2.

The signaling ~~means~~ device ~~determine~~ determines TFCI values for the selected combinations of transport formats TF for the services S1, S2, S3 and ~~perform~~ performs in-band signaling of the transport formats TF. In the separate channel FACH, the mapping specification for TFCI value to combination of transport formats TF and used channels DCH, DSCH is signaled.

The layer model shown in Figure 2 shows the protocols of the radio communication system divided into three layers.

Layer 1: physical layer for describing all the functions for bit transmission via a physical medium (e.g., coding, modulation, transmission power monitoring, synchronization etc.)~~;~~.